What is claimed is:

1. A light-emitting apparatus comprising:

a light source that emits primary light; and

a phosphor that absorbs at least part of the primary light emitted from the light source and emits secondary light having a longer peak wavelength than the primary light,

wherein the phosphor is formed of fine-particle crystals of a III-V group compound semiconductor, the fine-particle crystals each having a volume of 2 800 nm^3 or less.

2. A light-emitting apparatus as claimed in claim 1,

wherein, of III group elements and V group elements contained in the III-V group compound semiconductor, 50 % or more of the III group elements is indium, and 95 % or more of the V group elements is nitrogen.

3. A light-emitting apparatus as claimed in claim 1,

wherein the fine-particle crystals of the III-V group compound semiconductor have a predetermined volume distribution so that the secondary light emitted from the phosphor has a wavelength distribution corresponding to the volume distribution of the fine-particle crystals.

4. A light-emitting apparatus as claimed in claim 1,

wherein the III-V group compound semiconductor is a nitride semiconductor, and the fine-particle crystals thereof are each composed of a single portion having a uniform energy band gap.

5. A light-emitting apparatus as claimed in claim 1,

wherein the III-V group compound semiconductor is a nitride semiconductor, and the fine-particle crystals thereof are each composed of a first portion and a second portion that encloses the first portion and that has a greater energy band gap than the first portion.

6. A light-emitting apparatus as claimed in claim 1,

wherein the fine-particle crystals of the III-V group compound semiconductor are dispersed in glass, and the peak wavelength of the primary light emitted from the light source is in a range from 380 nm to 500 nm, both ends inclusive.

7. A light-emitting apparatus as claimed in claim 1,

wherein the fine-particle crystals of the III-V group compound semiconductor are dispersed in resin, and the peak wavelength of the primary light emitted from the light source is in a range from 395 nm to 500 nm, both ends inclusive.

8. A light-emitting apparatus as claimed in claim 1,

wherein, in an optical path from the light source to the phosphor, a filter is provided that cuts off light of wavelengths shorter than 395 nm.

9. A light-emitting apparatus as claimed in claim 1,

wherein, in an optical path of the secondary light emitted from the phosphor, a filter is provided that cuts off the primary light emitted from the light source.

10. A light-emitting apparatus as claimed in claim 1,

wherein the light source includes a light-emitting device using a nitride-based III-V

group compound semiconductor.

11. A light-emitting apparatus comprising:

a light source that emits primary light; and

a phosphor that absorbs at least part of the primary light emitted from the light source and emits secondary light having a longer peak wavelength than the primary light,

wherein the phosphor is formed of fine-particle crystals of a III-V group compound semiconductor, the fine-particle crystals each measuring 14 nm or less in two directions perpendicular to a longest side thereof.

12. A light-emitting apparatus as claimed in claim 11,

wherein, of III group elements and V group elements contained in the III-V group compound semiconductor, 50 % or more of the III group elements is indium, and 95 % or more of the V group elements is nitrogen.

13. A light-emitting apparatus as claimed in claim 11,

wherein the fine-particle crystals of the III-V group compound semiconductor have a predetermined volume distribution so that the secondary light emitted from the phosphor has a wavelength distribution corresponding to the volume distribution of the fine-particle crystals.

14. A light-emitting apparatus as claimed in claim 11,

wherein the III-V group compound semiconductor is a nitride semiconductor, and the fine-particle crystals thereof are each composed of a single portion having a uniform energy band gap.

15. A light-emitting apparatus as claimed in claim 11,

wherein the III-V group compound semiconductor is a nitride semiconductor, and the fine-particle crystals thereof are each composed of a first portion and a second portion that encloses the first portion and that has a greater energy band gap than the first portion.

16. A light-emitting apparatus as claimed in claim 11,

wherein the fine-particle crystals of the III-V group compound semiconductor are dispersed in glass, and the peak wavelength of the primary light emitted from the light source is in a range from 380 nm to 500 nm, both ends inclusive.

17. A light-emitting apparatus as claimed in claim 11,

wherein the fine-particle crystals of the III-V group compound semiconductor are dispersed in resin, and the peak wavelength of the primary light emitted from the light source is in a range from 395 nm to 500 nm, both ends inclusive.

18. A light-emitting apparatus as claimed in claim 11,

wherein, in an optical path from the light source to the phosphor, a filter is provided that cuts off light of wavelengths shorter than 395 nm.

19. A light-emitting apparatus as claimed in claim 11,

wherein, in an optical path of the secondary light emitted from the phosphor, a filter is provided that cuts off the primary light emitted from the light source.

20. A light-emitting apparatus as claimed in claim 11,

wherein the light source includes a light-emitting device using a nitride-based III-V group compound semiconductor.

21. A phosphor comprising:

fine-particle crystals of a III-V group compound semiconductor,

wherein the fine-particle crystals each have a volume of 2 800 nm^3 or less.

22. A method of producing a phosphor, comprising the step of:

producing, from materials containing a III group element and a V group element and through chemical synthesis, a phosphor formed of a III-V group compound semiconductor in a form of fine-particle crystals each having a volume of 2 800 nm^3 or less.

23. A method of producing a phosphor, comprising the step of:

producing, by using a III-V group compound semiconductor as a material and by laser ablation, a phosphor formed of fine-particle crystals each having a volume of 2 800 nm^3 or less.

24. A phosphor comprising:

fine-particle crystals of a III-V group compound semiconductor,

wherein the fine-particle crystals each measure 14 nm or less in two directions perpendicular to a longest side thereof.

25. A method of producing a phosphor, comprising the step of:

producing, from materials containing a III group element and a V group element and through chemical synthesis, a phosphor formed of a III-V group compound semiconductor in a form of fine-particle crystals each measuring 14 nm or less in two directions perpendicular to a longest side thereof.

26. A method of producing a phosphor, comprising the step of:

producing, by using a III-V group compound semiconductor as a material and by laser ablation, a phosphor formed of fine-particle crystals each measuring 14 nm or less in two directions perpendicular to a longest side thereof.